To establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the three requirements must "be found in the prior art, and not be based on applicant's disclosure." *See* M.P.E.P. §2143, 8th ed., February 2003.

Regarding the rejection of claims 1, 3-6, 9, and 17-19 under 35 U.S.C. § 103(a), Applicant submits that Tepman and Sumnitsch do not teach each and every element of claim 1, which recites, *inter alia*, "a lift base, and at least one lift pin . . . having two ends with a first end . . . and a second end for supporting [a] semiconductor wafer . . . , wherein the first end of the lift pin is threaded and the lift base has a threaded hole for receiving the first end of the lift pin."

The Examiner correctly recognized that "Tepman does not disclose the lift base has a thread hole." Office Action, page 2. In other words, Tepman fails to teach or suggest at least "wherein . . . the lift base has a threaded hole for receiving the first end of the lift pin," as recited in claim 1.

However, the Examiner alleged that "Sumnitsch discloses a semiconductor processing apparatus having a lift base (14) with a thread hole (32) for lift pins (fig. 2, col. 3, lines 19-27)." Office Action, page 2. Applicant respectfully disagrees.

First, Applicant notes that Sumnitsch does not teach anywhere in its disclosure a thread hole **32**. Applicant respectfully requests that the Examiner clarify in the next Office Action which element of Sumnitsch he was referring to.

Second, Sumnitsch only teaches that "a push bar 15 . . . is screwed into a threaded hole in ring 14," whereas "[t]he front end of each push bar 15 faces towards an actuation cup 17 at pegs 2." Sumnitsch, col. 3, lines 23-30. Clearly, push bar 15 does not have "a second end for supporting [a] semiconductor wafer" and therefore cannot correspond to Applicant's claimed "at least one lift pin." Thus, even assuming, *arguendo*, that Sumnitsch's ring 14 corresponds to Applicant's claimed "lift base," Sumnitsch clearly fails to teach or suggest at least that "the lift base has a threaded hole for receiving the first end of the lift pin," as recited in claim 1.

In view of the above, Tepman and Sumnitsch, taken alone or in combination, fail to teach or suggest at least "wherein . . . the lift base has a threaded hole for receiving the first end of the lift pin," wherein the first pin "has a second end for supporting [a] semiconductor wafer," as recited in claim 1.

Applicant also respectfully traverses the Examiner's allegation that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the threaded hole as disclosed by Sumnitsch into the lift base of Tepman in order to engage the lift pins without screws." Office Action, pages 2-3.

Applicant submits that there is no motivation in either Tepman or Sumnitsch for a combination of their teachings "to engage the lift pins without screws." As Applicant has repeatedly argued, Tepman clearly shows that each of pins 30 is coupled to the pin holder with one nut on each side of the pin holder, and therefore actually teaches away

from "wherein . . . the lift base has a threaded hole for receiving the first end of the lift pin," as recited in claim 1. In other words, based on Tepman's teachings, one skilled in the art would not be motivated to apply the teachings of any other reference, including Sumnitsch, to modify the structure of pin 30 and the pin holder such that the pin holder has a threaded hole for receiving pin 30.

On the other hand, as discussed above, Sumnitsch fails to teach or suggest at least "wherein . . . the lift base has a threaded hole for receiving the first end of the lift pin," wherein the first pin "has a second end for supporting [a] semiconductor wafer," as recited in claim 1. Sumnitsch only teaches pushing forward pegs 2 with "push bars 15 [gripping] at said cups 17." Sumnitsch, col. 3, lines 30-32. Clearly, Sumnitsch's teachings, if applied to Tepman, would not result in a "lift base [having] a threaded hole for receiving [a] first end of [a] lift pin," as recited in claim 1.

To summarize, neither Tepman nor Sumnitsch contains a motivation for one skilled in the art to have combined these two references at the time of Applicant's invention. Any attempt to combine the references to result in the claimed invention would have to be based on improper hindsight reasoning. Furthermore, there is no reasonable expectation of success in combining the references because even a combination of Tepman and Sumnitsch still fails to teach or suggest at least "wherein . . . the lift base has a threaded hole for receiving the first end of the lift pin," wherein the first pin "has a second end for supporting [a] semiconductor wafer," as recited in claim 1.

Therefore, claim 1 is allowable over Tepman in view of Sumnitsch.

Claims 3-6, 9, and 19, which depend from claim 1, are therefore also allowable at least because of their dependency from an allowable base claim.

For similar reasons, Tepman and Sumnitsch, taken alone or in combination, fail to teach or suggest at least "providing a removable first lift pin to a lift base in the lift structure, wherein a first end of the first lift pin is threaded and the lift base has a threaded hole for receiving the first end of the first lift pin," as recited in claim 17. Therefore, claim 17 is patentable over Tepman in view of Sumnitsch. Claim 18, which depends from claim 17, is also patentable at least because of its dependence from an allowable base claim.

Regarding the rejection of claims 7 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Tepman, Sumnitsch, and Morita et al., Applicant notes that Morita et al. fails to overcome the deficiencies of Tepman and Sumnitsch with regard to claim 1, as discussed above. Morita et al. discloses an electrostatic chuck, wherein "[an] ejector pin housing 19 consists of a housing base 19b of stainless steel (JIS-SUS316), with bores 19c for seating the springs 20 being formed therein, and a housing top 19a made of polyimide. The ejector pins 16 are fixed to individual pin flanges 18, which are connected to the ejector pin housing 19 through the individual springs 20 seated in the bores 19c." Col. 4, lines 50-56, and Fig. 2 of Morita et al. Morita et al. fails to teach or suggest at least "at least one pin removably coupled with the lift base", and therefore does not teach or suggest at least "the lift pin having two ends with a first end removably coupled to the lift base . . . , wherein the first end of the lift pin is threaded and the lift base has a threaded hole for receiving the first end of the lift pin," as recited in claim 1.

Thus, claim 1 is allowable over Tepman, Sumnitsch, and Morita et al., and claims 7 and 8, which depend from claim 1, are also allowable at least because of their dependence from an allowable base claim.

In view of the foregoing, Applicant respectfully requests the reconsideration and reexamination of this application and the timely allowance of the pending claims 1, 3-9, and 17-19.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: September 23, 2004

By: _____
Qingyu Yin *

*With limited recognition under 37 C.F.R. § 10.9(b).